Impact of FDI on ASEAN Economies

Plus-3 investment trends and spillovers to domestic firms — findings from a joint AMRO–ADB study

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AMRO
ASEAN +3 MACROECONOMIC RESEARCH OFFICE

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Motivation

Aim

- To understand the role of FDI from Plus Three in **structural transformation**, **productivity**, and **external integration** of ASEAN economies.

Objectives

- To map trends, sectoral and geographic composition of Plus Three FDI in ASEAN
- To assess FDI impacts on firm performance: labor productivity, employment, profitability, cost efficiency and capital intensity
- To draw practical lessons from country–sector Case Studies
- To set out policy implications and areas for future collaboration

Contribution

- Assess horizontal and vertical FDI spillovers from Plus Three on ASEAN and rest of Asia using firm level evidence, distinguishing by entry mode, source and economic sector, complemented with country case studies.

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PART 1

FDI Spillovers in ASEAN and rest of Asia

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Related Literature: FDI and Development Outcomes

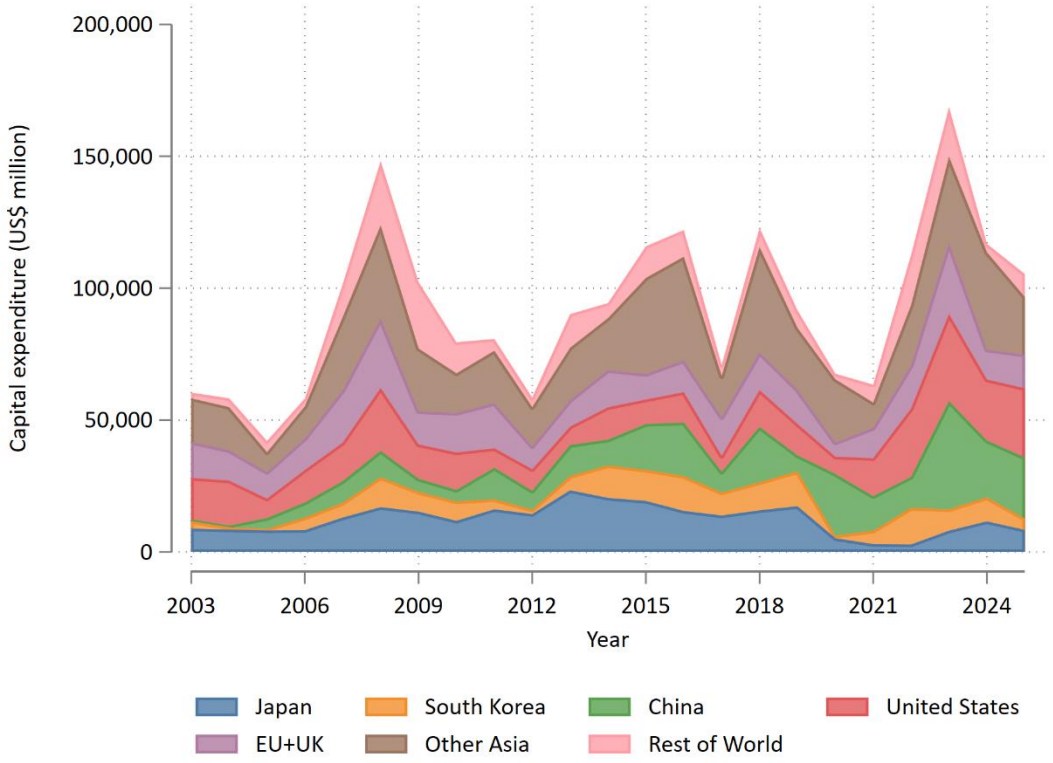
Theme	Key studies	Main finding
Spillovers heterogeneity	Demena & van Bergeijk (2017); Javorcik (2004); Alfaro-Ureña et al. (2022)	Heterogeneous by country, industry, and firm; backward linkages often stronger than horizontal; depends on absorptive capacity
Capital and growth	OECD (2025); Islam et al. (2021); Hoon & Zhao (2024); Zhang (2021); Ross & Fleming (2023)	Supports capital and financial-sector deepening; growth effects vary; crowding-out possible
Employment and wages	OECD (2025); Tan et al. (2025); Nguyen, Tran, and Vu (2024)	Positive on jobs and wages; job quality and distribution of gains uneven
Exports and GVCs	OECD (2025); Camarero et al. (2021); Bao et al. (2022); Chen et al. (2023)	Drives exports and GVC integration; often market-seeking rather than export-platform
Productivity and tech transfer	Zhang & Yang (2022); Wang & Chen (2024)	Rising productivity contribution; technology diffusion often indirect, limited by enclave effects
Resilience and institutions	Saleh (2023); Cieslik & Ryan (2024); Narayan, Rath, and Syarifuddin (2022)	Aids resilience to shocks; institutions shape both inflows and realized benefits

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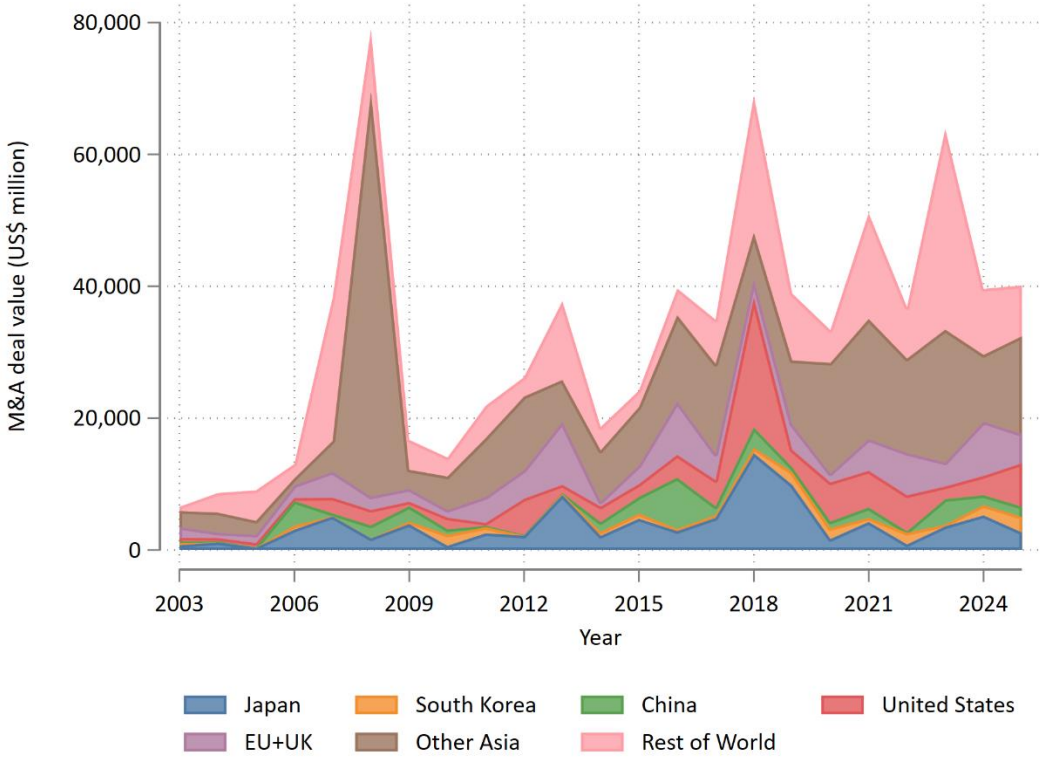
Greenfield investment into ASEAN remains significant

- Asia remains a major FDI source for ASEAN economies, EU+UK and US also being major partners
- Among Plus-3 economies, China's share of FDI inflows has risen since 2020, especially in greenfield investment

Greenfield FDI to ASEAN, by Origin



Cross-border M&A to ASEAN, by Origin

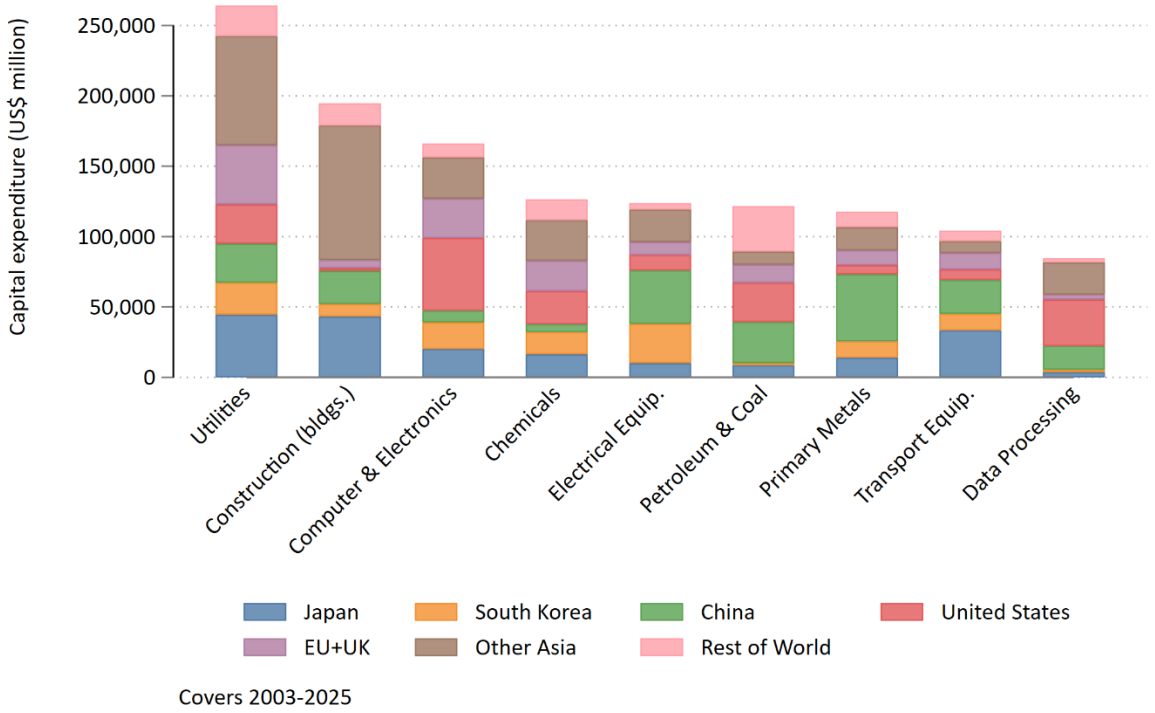


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Greenfield FDI and cross-border M&A exhibit different sectoral compositions

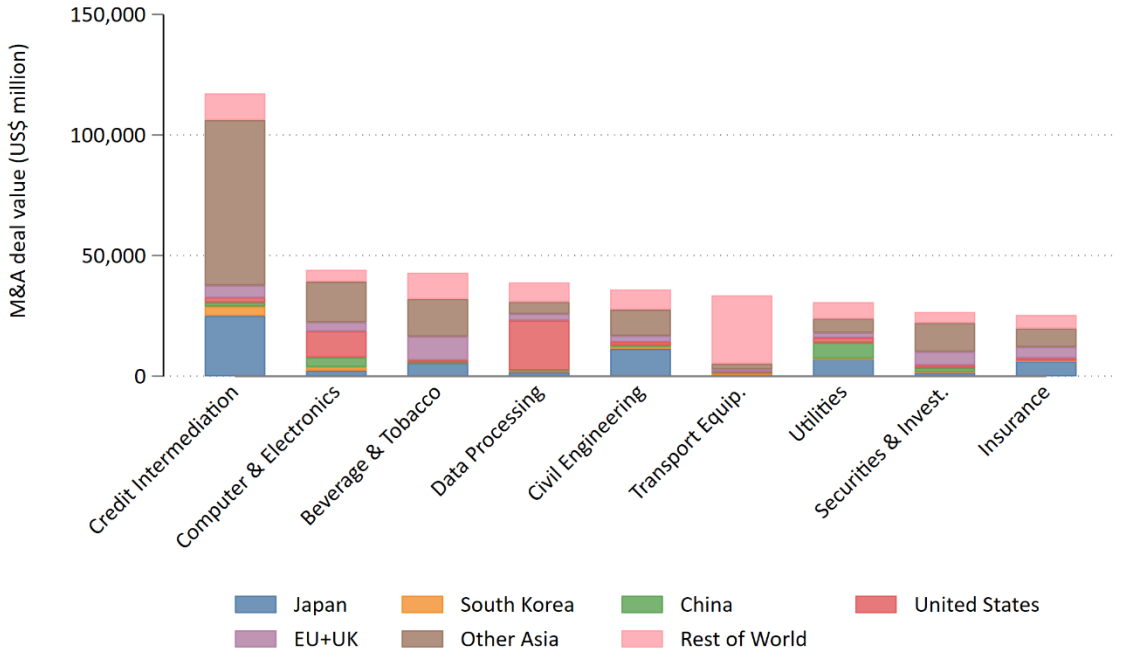
- Main FDI sources vary across top sectors (e.g., PRC more prominent in GF, Japan a major Plus-3 contributor to M&A into credit intermediation, the US into data processing)

Top 10 Sectors: Greenfield FDI to ASEAN, by Origin



Covers 2003-2025

Top 10 Sectors: Cross-border M&A to ASEAN, by Origin



Covers 2003-2025

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Conceptual Framework: Spillover Channels

- Following Javorcik (2004) and Ahn, Aiyar, and Presbitero (2025), for origin country *o*, destination country *c*, industry *j*, year *t*:

Horizontal

Exposure to MNEs in the same industry (intra-industry presence):

$$FDI_{cjt}^{o,within} = Log(1 + count) \text{ of } GF \text{ or } M\&A \text{ deals}$$

Backward

Exposure to MNEs in downstream customer industries (domestic firms as suppliers to foreign buyers):

$$FDI_{cjt}^{o,supplier} = \sum_{u \neq \textbf{abroad}} \frac{\alpha_{cuj}}{\sum_u \alpha_{cuj}} FDI_{cut}^{o,within}$$

Forward

Exposure to MNEs in upstream supplier industries (domestic firms as users of foreign inputs):

$$FDI_{cjt}^{o,user} = \sum_{s \neq \textbf{abroad}} \frac{\alpha_{cjs}}{\sum_s \alpha_{cjs}} FDI_{cst}^{o,within}$$

α_{cus}: input supplied by sector s to sector u in country c, from ADB's Multiregional Input-Output (MRIO) tables

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Data and empirical strategy

Data

Firm data

- WBES Standardized Raw Database (June 2026 ed.) incl. 290,000 firms globally
- Focus on fully domestic ASEAN firms (based on foreign-ownership share) for survey waves from 2009–2025, ≃ 19,000 domestic firms

FDI deals: fDi Markets (greenfield) + ORBIS (cross-border M&A)

Empirical Strategy

FDI Exposure (t−3)

Horizontal | Backward | Forward

Regression Model

- Controls for country, sector, and year trends
- Separate estimations by origin and by entry mode

Change in Outcomes (t−3→t)

Δ LP Growth | Δ Employment Growth

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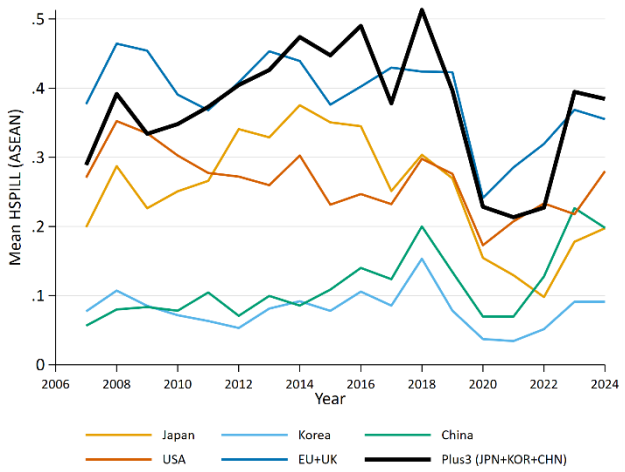
Plus-3 linkages with ASEAN are strong, though greenfield exposure is more cyclical than M&A

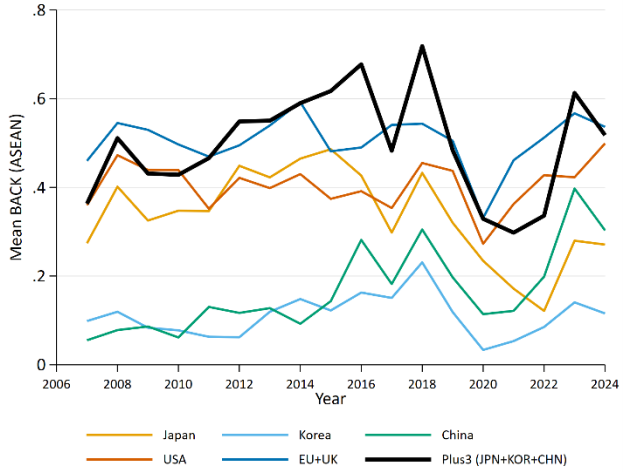
Horizontal

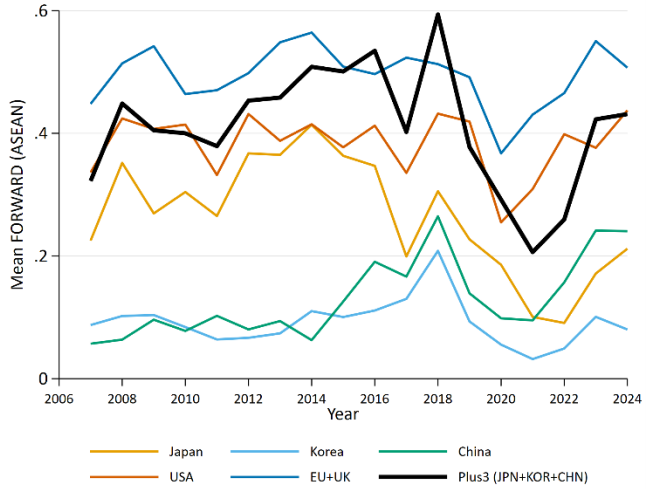
Backward

Forward

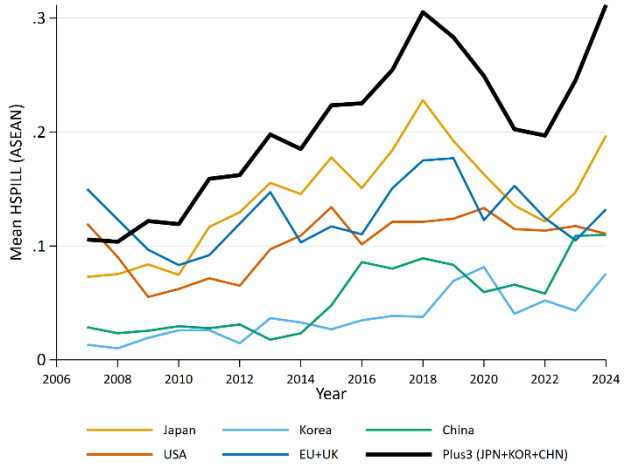
Greenfield

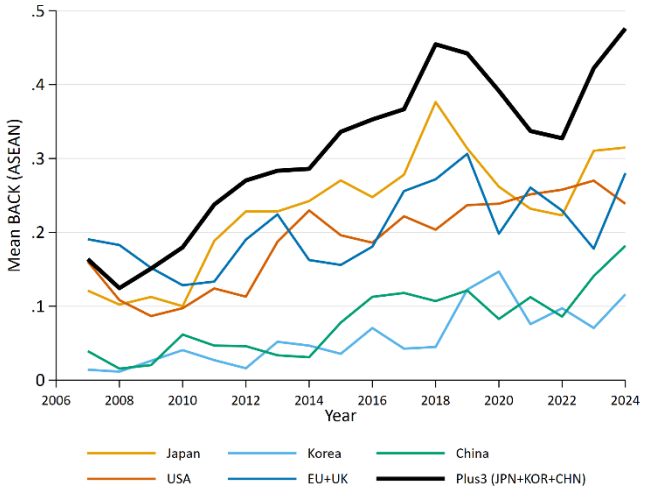


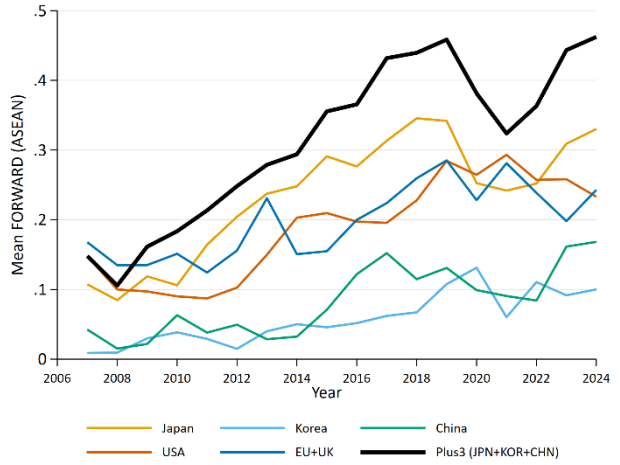




M&A





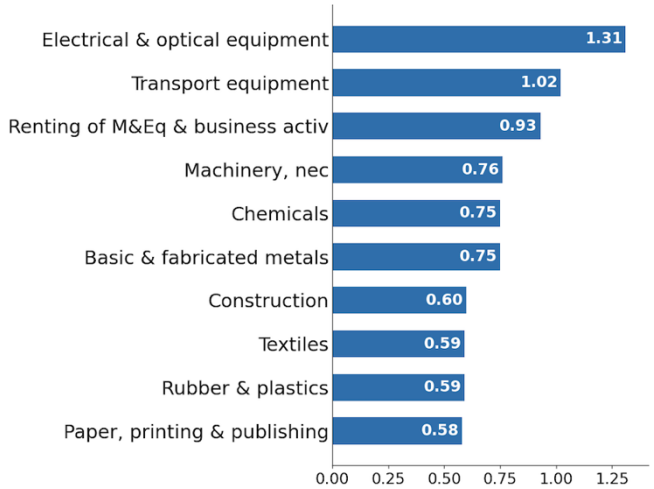


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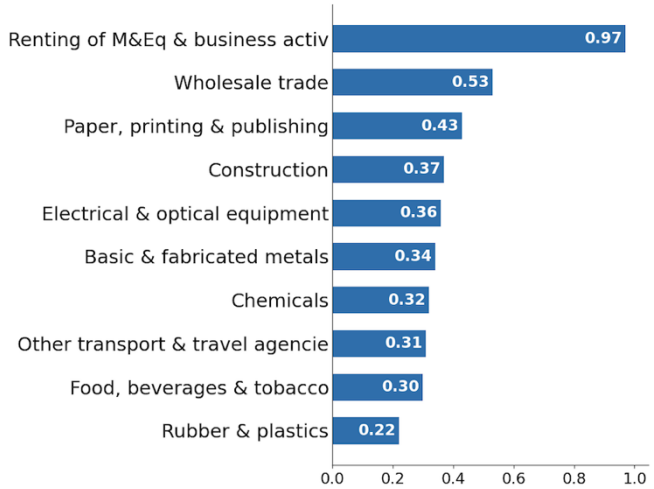
Plus-3's FDI exposure is concentrated in manufacturing (for greenfield) and in business services and wholesale trade (for M&A)

Horizontal

Greenfield

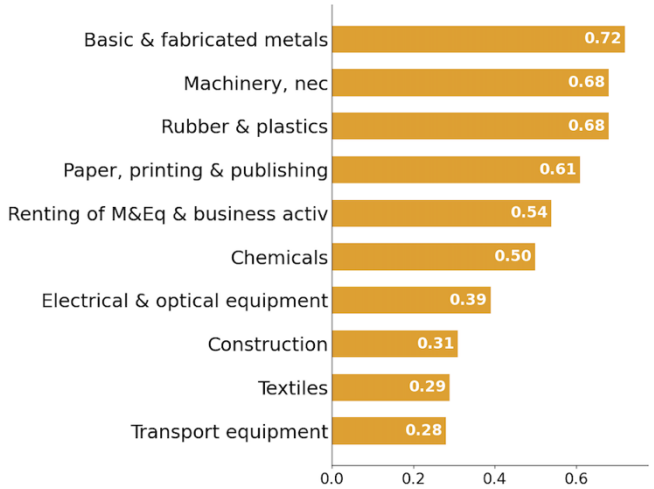


M&A

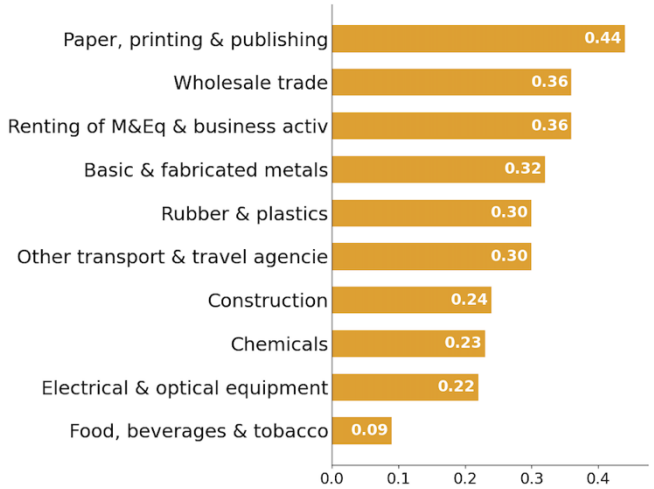


Backward

Greenfield

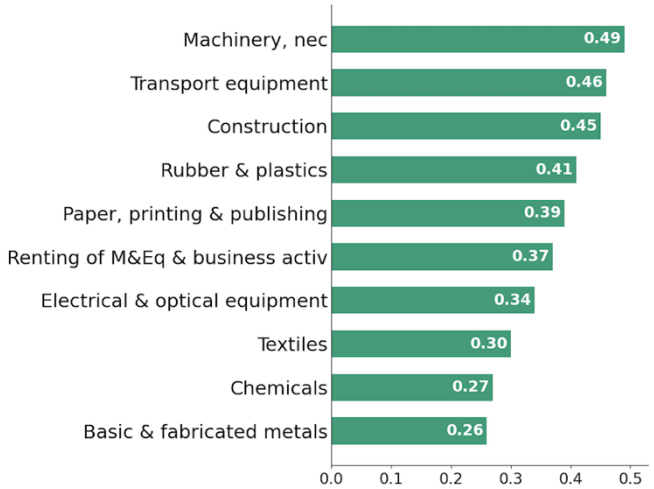


M&A

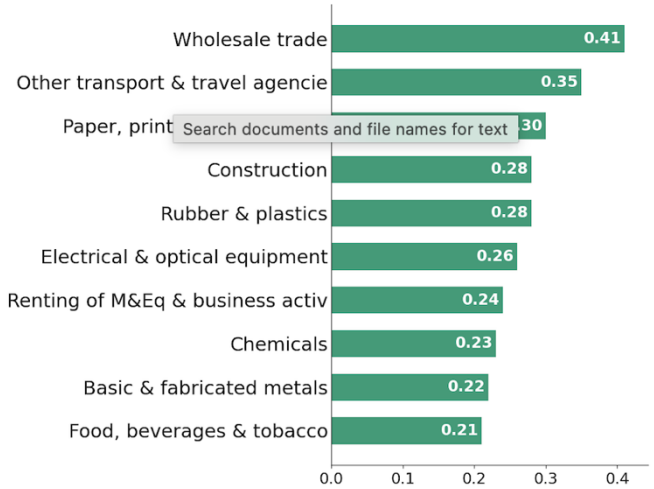


Forward

Greenfield



M&A



Labor productivity spillovers in ASEAN are stronger for greenfield investment

- Greenfield spillovers are stronger and more often significant than M&A, especially Japan's horizontal/backward channels and pooled Plus-3 horizontal effect
- Differential effects for PRC investments in greenfield projects (positive horizontal, negative backward)
- M&A effects are weaker throughout

Panel A: Greenfield

	JPN	KOR	CHN	USA	EU+UK	Plus-3
Horizontal	0.210**	−0.015	0.104	−0.008	0.031	0.096**
Backward	0.149***	0.472	−0.329**	0.122	0.043	0.045
Forward	−0.221*	−0.743**	0.829**	−0.670***	−0.492***	−0.093

Panel B: Cross-Border M&A

	JPN	KOR	CHN	USA	EU+UK	Plus-3
Horizontal	−0.067	0.065	−0.128	−0.082	−0.127**	−0.007
Backward	−0.084	−0.255	−0.535	0.085	0.125	−0.069
Forward	0.111	−0.346	0.368*	0.577***	−0.383	0.035

Notes: $*p < 0.10$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses, two-way clustered at country-sector and country-year. Fixed effects: country-sector, country-year, sector-year. FDI channels lagged three years. The sample comprises domestically-owned firms in ASEAN. Backward and forward linkages are constructed from ADB Multiregional Input-Output tables. EU+UK aggregates the European Union and the United Kingdom; JPN+KOR+CHN aggregates Japan, Korea, and China.

Source: AMRO–ADB staff estimates based on ADB MRIO input output tables, FDI Markets, Orbis and World Bank Enterprise Survey Standardized Raw Database.

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By sector: Plus-3's labor productivity spillovers are concentrated in greenfield manufacturing

- The pooled effect is positive and significant in GF manufacturing; M&A manufacturing shows no significant Plus-3 effect
- In services, GF is null while M&A turns significantly negative across all three channels; by origin, Japan alone shows significant positive GF effects on horizontal (0.475**) and backward (0.270**) linkages in services.

Channel	Greenfield, Manuf.	Greenfield, Services	M&A, Manuf.	M&A, Services
Horizontal	0.149**	0.052	0.045	−0.417***
Backward	0.324**	0.017	0.017	−0.386**
Forward	0.070	−0.074	−0.002	−0.822*

Notes: $*p < 0.10$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses, two-way clustered at country-sector and country-year. Fixed effects: country-sector, country-year, sector-year. FDI channels lagged three years. The sample comprises domestically-owned manufacturing firms in ASEAN. Backward and forward linkages are constructed from ADB Multiregional Input-Output tables. EU+UK aggregates the European Union and the United Kingdom; JPN+KOR+CHN aggregates Japan, Korea, and China.

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ASEAN vs Rest of Asia: positive forward spillovers on LP outside ASEAN

- Forward exposure varies for GF: negative in ASEAN (Korea, USA, EU), positive in the rest of Asia (Japan, China, USA, EU+UK, Plus3)
- M&A spillovers on LP tend to be weaker both for ASEAN and rest of Asia

Greenfield

	JPN	KOR	CHN	USA	EU+UK	Plus 3
ASEAN						
Horiz.	0.210**	−0.015	0.104	−0.008	0.031	0.096**
Back.	0.149***	0.472	−0.329**	0.122	0.043	0.045
Fwd.	−0.221*	−0.743**	0.829**	−0.670***	−0.492***	−0.093
Rest of Asia						
Horiz.	−0.015	−0.126	0.052	−0.062	−0.067	−0.052
Back.	0.165	0.188	−0.192	−0.023	−0.050	0.003
Fwd.	0.410**	−0.191	0.721*	0.184***	0.199**	0.553***

Cross-Border M&A

	JPN	KOR	CHN	USA	EU+UK	Plus 3
ASEAN						
Horiz.	−0.067	0.065	−0.128	−0.082	−0.127**	−0.007
Back.	−0.084	−0.255	−0.535	0.085	0.125	−0.069
Fwd.	0.111	−0.346	0.368*	0.577***	−0.383	0.035
Rest of Asia						
Horiz.	0.059	−0.029	0.218**	0.055	0.030	0.004
Back.	−0.045	0.025	1.015	0.019	0.041	0.148
Fwd.	−0.091	1.168***	0.004	0.045	0.250*	0.178

*Notes: *p < 0.10, **p < 0.05, ***p < 0.01. Standard errors in parentheses, two-way clustered at country-sector and country-year. Fixed effects: country-sector, country-year, sector-year. FDI channels lagged three years. The sample comprises domestically-owned firms in ASEAN. Backward and forward linkages are constructed from ADB Multiregional Input-Output tables. EU+UK aggregates the European Union and the United Kingdom; JPN+KOR+CHN aggregates Japan, Korea, and China.*

Source: AMRO–ADB staff estimates based on ADB MRIO input output tables, FDI Markets, Orbis and World Bank Enterprise Survey Standardized Raw Database.

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Forward linkages tend to have more positive spillovers in rest of Asia than in ASEAN

Summary: Labor Productivity, Overall

Channel	Origin	Greenfield		Cross-Border M&A	
		ASEAN	Asia excl. ASEAN	ASEAN	Asia excl. ASEAN
	N	11,079	45,616	11,079	45,616
Horizontal (intra-industry)	JPN	+**	−	−	+
	KOR	−	−	+	−
	CHN	+	+	−	+**
	USA	−	−	−	+
	EU+UK	+	−	−**	+
	Plus3	+**	−	−	+
Backward (FDI supplier)	JPN	+***	+	−	−
	KOR	+	+	−	+
	CHN	−**	−	−	+
	USA	+	−	+	+
	EU+UK	+	−	+	+
	Plus3	+	+	−	+
Forward (FDI user)	JPN	−*	+**	+	−
	KOR	−**	−	−	+***
	CHN	+**	+*	+*	+
	USA	−***	+***	+***	+
	EU+UK	−***	+**	−	+*
	Plus3	−	+***	+	+

Higher Lower Not significant

*Notes: *p < 0.10, **p < 0.05, ***p < 0.01; unstarred cells are not statistically significant but retain their estimated sign.*

KEY OBSERVATIONS

1. Forward spillover effects tend to be different in ASEAN than in Asia for GF
2. Horizontal and backward spillovers are present in ASEAN but not the rest of Asia; Japan has most consistent effects
3. Positive M&A spillovers are concentrated in forward linkages

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Plus-3's greenfield employment effect mirrors EU+UK's; the USA shows no significant effect

- Backward exposure associated to lower employment for GF from Japan, Korea, EU+UK, and Plus3 (driven by services-sector); manufacturing shows a mixed pattern, positive for China/USA and negative for Japan/Korea
- M&A spillovers on employment are mostly insignificant.
- Labor productivity more robust overall under different specifications.

Panel A: Greenfield

	JPN	KOR	CHN	USA	EU+UK	Plus3
Horizontal	−0.005	−0.010	−0.056**	−0.014	0.009	−0.023
Backward	−0.098***	−0.357***	0.088	−0.017	−0.072**	−0.067***
Forward	0.131**	−0.068	0.141	−0.002	−0.026	0.061

Panel B: Cross-Border M&A

	JPN	KOR	CHN	USA	EU+UK	Plus3
Horizontal	0.007	0.025	−0.051	0.019	−0.048**	0.022
Backward	0.021	−0.032	−0.325	0.053	0.045	0.016
Forward	0.042	0.087	0.231***	0.056	−0.071	0.136**

*Δln Employment, ASEAN overall sample. N=12,550 both panels. **p<0.05, ***p<0.01.*

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Employment spillovers in GF mostly negative through backward linkages, while in rest of Asia mainly positive through intra-industry linkages

Sign and Significance Summary: Employment, Overall

Channel	Origin	Greenfield		Cross-Border M&A	
		ASEAN	Asia excl. ASEAN	ASEAN	Asia excl. ASEAN
	N	12,550	49,073	12,550	49,073
Horizontal (intra-industry)	JPN	–	–	+	+***
	KOR	–	+	+	–
	CHN	–**	–	–	–**
	USA	–	+	+	–
	EU+UK	+	+***	–**	+
	Plus3	–	–	+	+**
Backward (FDI supplier)	JPN	–***	–	+	+
	KOR	–***	+	–	+
	CHN	+	–	–	+
	USA	–	–	+	+***
	EU+UK	–**	–	+	–
	Plus3	–***	–	+	+
Forward (FDI user)	JPN	+**	–	+	–
	KOR	–	+	+	–
	CHN	+	–	+***	+
	USA	–	–	+	–
	EU+UK	–	+	–	+
	Plus3	+	–	+**	–

Higher Lower Not significant

*Notes: *p < 0.10, **p < 0.05, ***p < 0.01; unstarred cells are not statistically significant but retain their estimated sign.*

KEY OBSERVATIONS

1. Greenfield into ASEAN shows the most consistent employment effects, but unlike productivity, they're mostly negative

2. M&A's employment effects are sparse and spread across channels with no dominant pattern

3. Outside ASEAN, employment effects only show up mostly through horizontal linkages

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Summary of Key Findings

- **Entry mode may have different spillovers**
  - Greenfield FDI is associated to more robust productivity spillovers in ASEAN than cross-border M&A. Effects are more clear in manufacturing than in service-oriented firms.
  - M&A produces fewer significant effects overall.

- **Origin of investment matters for labor productivity**
  - Heterogeneity on spillovers by sector and origin.
  - Overall, spillovers from Japan FDI is most consistent through intra-industry and backward linkages; PRC's effect is more dependent on channel and sector.

- **Employment effects are concentrated and less robust**
  - Greenfield backward-linkage negative effect concentrate in services; manufacturing is mixed, and M&A shows no effects; Outside ASEAN, employment effects only show up mostly through horizontal linkages

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PART 2

FDI Spillovers in ASEAN Economies

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Structure of the Presentation

1 FDI Trends

Part 2.1

How have the scale, composition, and geography of Plus-3 FDI into ASEAN changed?

2 Empirical Research

Part 2.2

Does foreign presence improve domestic firm performance (profitability, cost efficiency and capital intensity) — and how do spillovers differ by investor origin, host economy, period, channel, manufacturing vs. services, and firm characteristics?

3 Case Studies

Part 3

How has absorptive capacity (supplier development, research & university-industry links, access to finance, and policy framework) shaped the depth of spillovers?

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PART 2.1

Trends in Plus-3 FDI into ASEAN

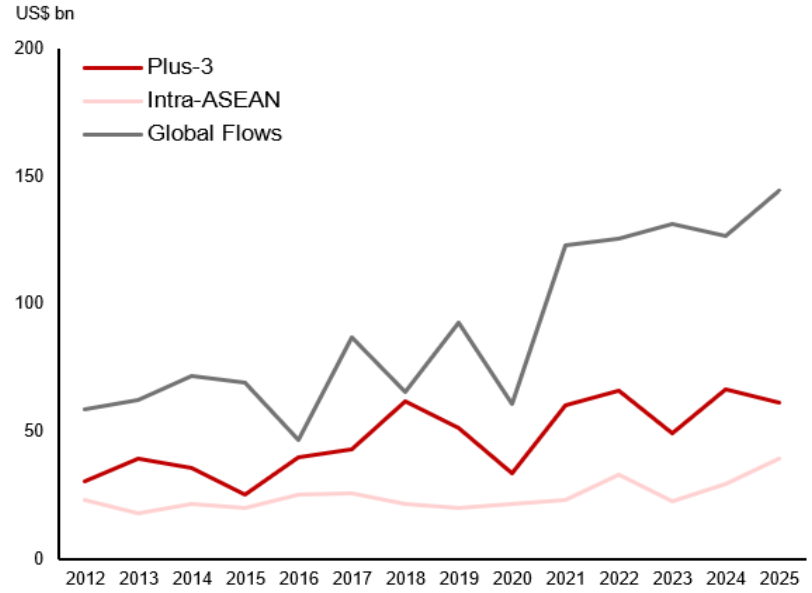
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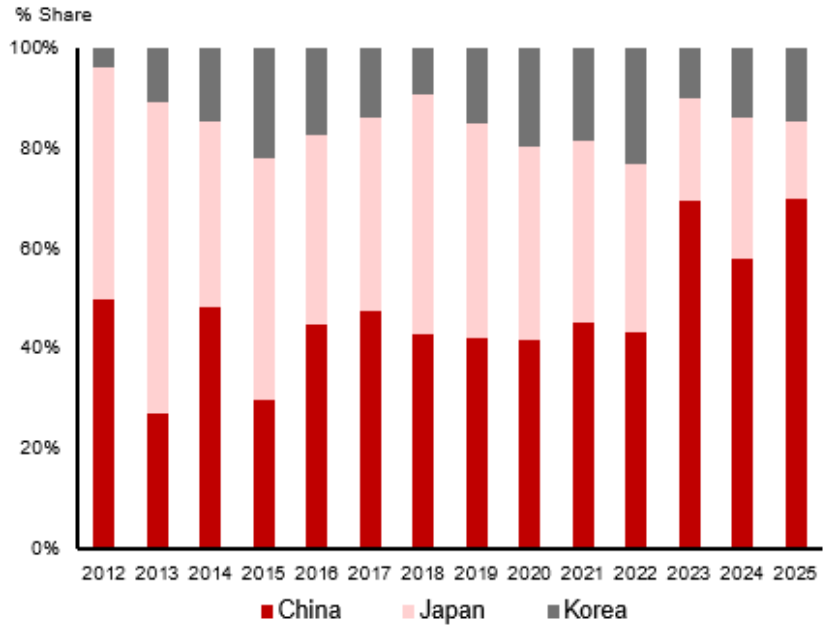
Chapter 2: FDI Trends – A reordering within Plus-3, not a larger regional share

- Total FDI inflows into ASEAN more than doubled, from about US$112 billion in 2012 to roughly US$246 billion in 2025
- Growth was broad-based with a stable source structure: shares of Plus-3, Intra-ASEAN, and extra-regional sources are roughly the same. Share of Plus-3 has remained about 29% on average.
- However, the composition of Plus-3 flows has shifted substantially:
  - China's share rose from 27% to 70% between 2013 and 2025 (especially since 2022), while Japan's fell from 62% to 16%
  - Considers new annual flows only, not accumulated stocks, capacity, employment, or supplier networks

FDI Inflows to ASEAN by Regional Source



Plus-3 Inflows to ASEAN by Country Source

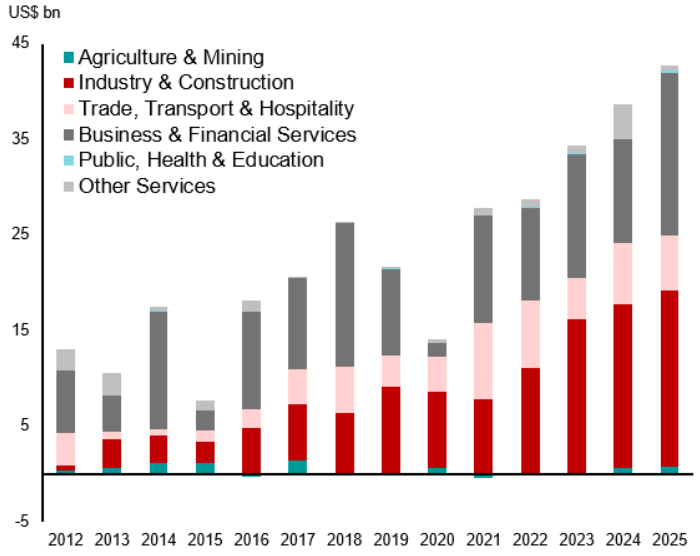


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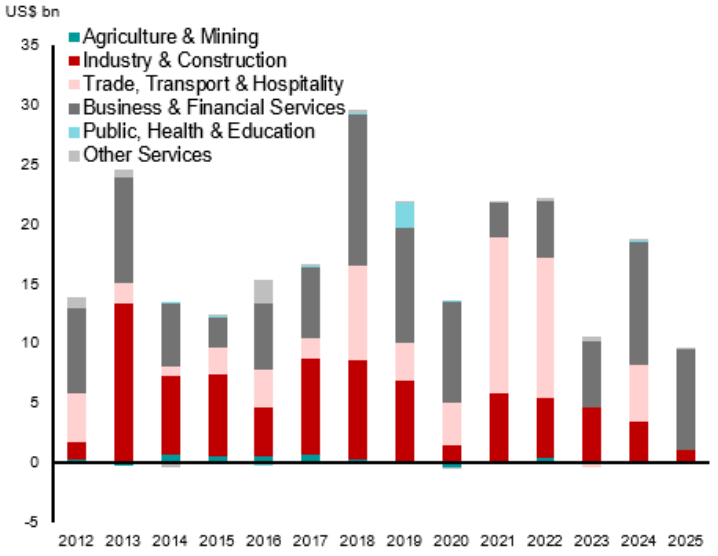
FDI Trends – Industry drives China's rise, while Japan narrows to services

- China: a broadening presence with industry, manufacturing at its core
  - Industry, largely driven by manufacturing and energy, and construction rose from a negligible share to become the largest component of Chinese flows in 2025
  - Business and financial services followed with US$17.1bn, nearly 40% of 2025 flows
- Japan: the decline is concentrated in industry, leaving services dominant by default
  - Services now about 88% of FDI — a reflection of weak other components instead of an outright expansion
- Korea: a stable industrial base, with services as the swing factor
  - Business and financial services drove upswings; other components remain relatively stable

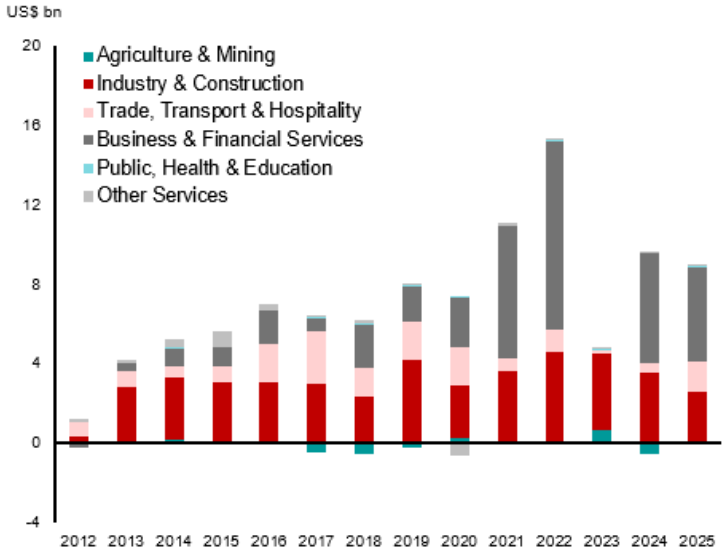
FDI Inflows from China by Industry



FDI Inflows from Japan by Industry



FDI Inflows from Korea by Industry

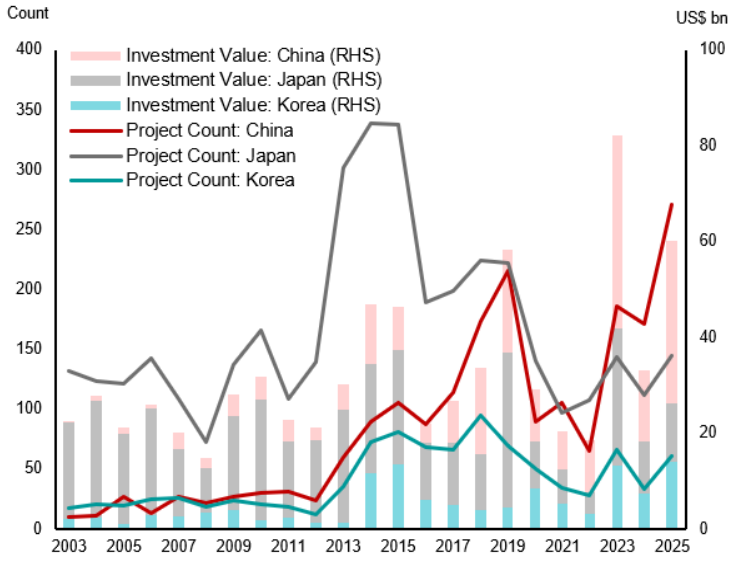


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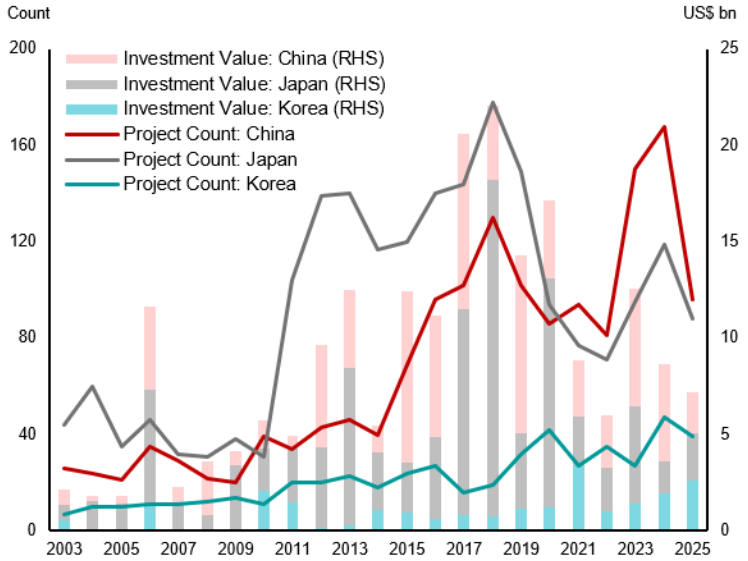
FDI Trends – China expanded in greenfield investments, Japan in M&A

- China: rapid expansion in greenfield activity
  - Announced greenfield projects rose from single digits to a record 271 in 2025, overtaking Japan
  - Drivers go beyond tariff-related relocation: ASEAN market growth, EV and battery chains, infrastructure projects
- Japan: the most acquisition-oriented Plus-3 investor
  - M&A value fell from US$17.5bn in 2018 to US$2.4bn in 2025; its lead being increasingly challenged by China
- Korea: few but large projects across both channels
  - 61 greenfield projects in 2025 — about US$256mn each, against US$127mn for China and US$85mn for Japan

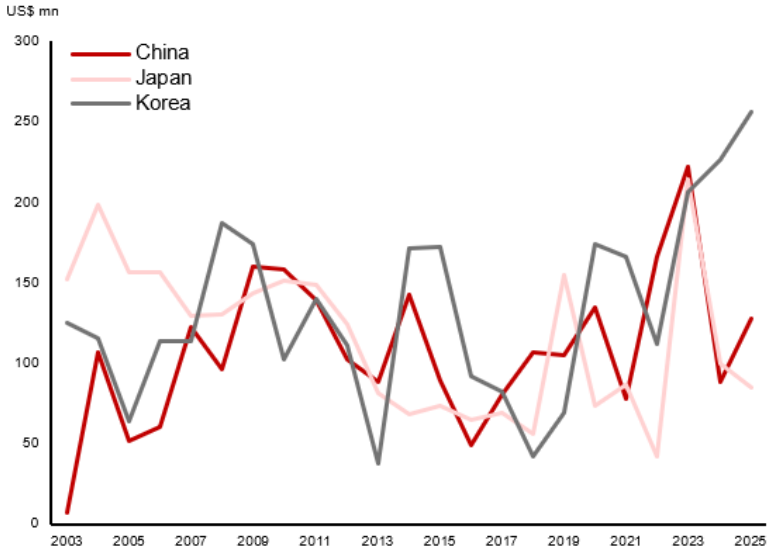
Plus-3: Greenfield Activities



Plus-3: M&A Activities



Plus-3: Average Greenfield Value



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PART 2.2

Empirical Analysis of FDI Spillovers

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Empirical questions

Core question

Does FDI in general have spillovers to the **profitability**, **cost efficiency** and **capital intensity** of domestic firms in ASEAN-6?

Do FDI spillovers to domestic firms differ?

- Across transmission channels
- Between manufacturing and services
- By investor source
- Across host economies
- Over time (before and after 2018)
- By firm characteristics

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Data and outcomes

Data

Moody's Orbis Database

- ASEAN-6 (ID, MY, PH, SG, TH, VN)
- 2010–25
- Domestic firms (100% ownership)
- Manufacturing and services firms
- > 1.2 million firms

Outcome Variables

Operating return on assets	**Profitability**

Ability to generate operating profits from its asset base

Operating cost to revenue ratio	**Cost efficiency**

Production costs required to generate operating revenue (a lower ratio = higher efficiency)

Tangible fixed asset ratio	**Capital intensity**

Extent to which asset base is concentrated in physical capital

Contribution to the literature: Cross-country firm-level evidence on horizontal and vertical FDI spillovers across ASEAN-6, covering multiple firm outcomes and investor origins

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Different channels of FDI spillovers

Following Javorcik (2004) & Fons-Rosen and others (2013), we estimate horizontal and vertical spillovers on firm outcomes using variation in sector-level foreign ownership exposure across economies and over time

Horizontal spillovers

Horizontal spillover

$$Spillover_{cjt}^{hor} = \frac{\sum_{i \epsilon cj} FO_{it} \times Y_{it}}{\sum_{i \epsilon cj} Y_{it}}$$

Foreign exposure within the same NACE 2-digit sector

Same-sector spillover

$$Spillover_{cj4t}^{sam} = \frac{\sum_{i \epsilon cj4} FO_{it} \times Y_{it}}{\sum_{i \epsilon cj4} Y_{it}}$$

Foreign exposure within the same NACE 4-digit sector

Related-sector spillover

$$Spillover_{cj4t}^{rel} = Spillover_{cjt}^{hor} - \frac{\sum_{i \epsilon cj4} FO_{it} \times Y_{it}}{\sum_{i \epsilon cj} Y_{it}}$$

Foreign exposure within the same NACE 2-digit sector but different NACE 4-digit sectors

Vertical spillovers

Backward spillover

$$Spillover_{cjt}^{bac} = \sum_{k \neq j} \alpha_{cjk} Spillover_{ckt}^{hor}$$

Foreign exposure of downstream NACE 2-digit sectors

Forward spillover

$$Spillover_{cjt}^{for} = \sum_{m \neq j} \sigma_{jm} Spillover_{cmt}^{hor}$$

Foreign exposure of upstream NACE 2-digit sectors

Vertical spillovers weighted using input-output coefficients from ADB's MRIO table

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Manufacturing: more favorable Plus-3 (CN & JP) spillovers than US spillovers

FDI spillovers to domestic manufacturing firms, ASEAN-6, 2010–25

Outcome	Linkage	All FDI	Plus-3	China	Japan	Korea	US	Europe
Profitability	Backward	+	+	+	+	–	–***	–
	Forward	+	+	–	+*	–	+	+
	Horizontal	+	+	+* (post-2018)	+**	–	–**	–
Cost efficiency	Backward	+	+	+**	+	–	–	+
	Forward	+	+	+** (post-2018)	–	–	+	–
	Horizontal	+***	–	–	+	–***	+*	+**
Capital intensity	Backward	–	+*	–	+**	–	+	+
	Forward	–	–**	–**	–**	+	–	–
	Horizontal	+	–	–	+	–	–	–

Higher Lower Not significant

Significance: *** p<0.01, ** p<0.05, * p<0.1. (post-2018) = significant effect in 2018–25; otherwise 2010–25. Backward = domestic firms supplying foreign affiliates; forward = domestic firms buying from them; horizontal = same sector. China includes Hong Kong; Europe = euro area and UK. For cost efficiency, + denotes improvement (a lower operating cost-to-revenue ratio).

KEY OBSERVATIONS

1 Japan

Higher profitability via forward and horizontal linkages, and supplier upgrading (higher capital intensity) via backward linkages

2 China

After 2018, as production relocated to ASEAN: higher profitability in related sectors, and cost-efficiency gains among domestic suppliers and buyers

3 Korea

Few significant effects; the main one is lower cost efficiency among same-sector domestic firms

4 US

Lower profitability for domestic suppliers and competitors, consistent with US lead firms bringing established global suppliers

Source: AMRO–ADB staff estimates based on Moody's Orbis.

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Manufacturing by economy: spillovers vary across host economies

FDI spillovers to domestic manufacturing firms by host economy, ASEAN-6, 2010–25

Outcome	Linkage	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Profitability	Backward	US + KR –	JP + US –	n.s.	n.s.	All, CN, JP +	All, US +
	Forward	US –	US + CN –	n.s.	n.s.	KR –	n.s.
	Horizontal	P3, CN, KR +	JP –	JP + KR –	All, JP +	P3, JP + KR, US –	JP +
Cost efficiency	Backward	KR – US +	US +	n.s.	All, US +	US –	US – EU +
	Forward	US, EU –	EU –	All +	n.s.	n.s.	n.s.
	Horizontal	KR +	n.s.	All, P3, JP +	P3 – All, US, EU +	P3 +	CN –
Capital intensity	Backward	P3, CN + KR, EU –	CN, KR +	All –	n.s.	JP +	All +
	Forward	n.s.	n.s.	n.s.	All +	CN –	US +
	Horizontal	US –	All, CN, EU +	All +	CN, EU –	US –	All, EU –

+ Higher – Lower

Cells list sources with effects significant at p<0.1 (sign = direction; n.s. = no significant effect). All = all FDI; P3 = Plus-3; CN = China incl. HK; EU = euro area and UK. Backward = domestic suppliers to foreign affiliates; forward = domestic buyers; horizontal = same sector. For cost efficiency, + denotes improvement (a lower operating cost-to-revenue ratio).

Source: AMRO–ADB staff estimates based on Moody's Orbis.

KEY OBSERVATIONS

1 Overall

Spillovers depend on the host economy, reflecting long-standing investment ties, cluster development and policy support.

2 Profitability

More evident gains in **SG, TH and VN**, especially from **Japanese** FDI, reflecting long-established regional production networks and technology transfer

3 Cost efficiency

Gains in **SG**, as US firms upgrade local suppliers, and in **PH**, reflecting efficiency gains within existing value-chain roles rather than upgrading

4 Capital intensity

Higher in **MY**, as foreign buyers' standards push local suppliers to invest in machinery and automation

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Services: larger spillovers, with contrasting backward and forward effects

FDI spillovers to domestic services firms, ASEAN-6, 2010–25

Outcome	Linkage	All FDI	Plus-3	China	Japan	Korea	US	Europe
Profitability	Backward	+**	+	+	–	+***	+	+
	Forward	–***	–***	–***	–	–	+	–***
	Horizontal	+*	–	+	–	–	+	–
Cost efficiency	Backward	–	–**	–**	–**	+	+	–
	Forward	+	+	+***	–	+	+	–
	Horizontal	+	+**	+**	+	+	+**	–
Capital intensity	Backward	–	–	–	–**	+***	–	–
	Forward	+	+	+	–	+	–*	+
	Horizontal	–	+	+	+	–	–	–

Higher Lower Not significant

Significance: *** p<0.01, ** p<0.05, * p<0.1. Backward = domestic firms supplying foreign affiliates; forward = domestic firms buying from them; horizontal = same sector. China includes Hong Kong; Europe = euro area and UK. For cost efficiency, + denotes improvement (a lower operating cost-to-revenue ratio).

Source: AMRO–ADB staff estimates based on Moody's Orbis.

KEY OBSERVATIONS

1 Backward vs Forward

Backward: Higher profitability, weaker cost efficiency
Forward: Lower profitability, stronger cost efficiency

2 Korea

Higher profitability and capital intensity among domestic suppliers through backward linkages

3 China

Cost-efficiency gains via forward and related-sector linkages, but higher cost intensity for domestic suppliers

4 Japan

Less favorable spillovers compared to manufacturing

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Services by economy: spillovers are mixed but more evident from established investors

FDI spillovers to domestic services firms by host economy, ASEAN-6, 2010–25

Outcome	Linkage	Indonesia	Malaysia	Philippines	Singapore	Thailand	Vietnam
Profitability	Backward	EU +	n.s.	n.s.	All +	n.s.	P3, KR +
	Forward	All, EU −	P3, CN + EU −	n.s.	P3 +	All, CN, EU −	JP +
	Horizontal	KR + JP, US −	EU + JP, KR, US −	n.s.	JP −	n.s.	JP, EU −
Cost efficiency	Backward	KR +	n.s.	KR −	P3, CN − US +	P3, JP − KR, EU +	P3, KR − EU +
	Forward	JP +	n.s.	n.s.	All +	CN +	P3, JP − KR, US +
	Horizontal	n.s.	P3, JP − US +	n.s.	P3, CN +	All +	JP −
Capital intensity	Backward	n.s.	CN −	EU +	JP + EU −	P3, CN, JP −	P3, KR +
	Forward	n.s.	P3, JP, US +	n.s.	JP −	CN +	JP + CN, US −
	Horizontal	KR −	P3, JP +	US + CN −	US −	All, P3, KR −	EU −

+ Higher **−** Lower

Cells list sources with effects significant at p<0.1 (sign = direction; n.s. = no significant effect). All = all FDI; P3 = Plus-3; CN = China incl. HK; EU = euro area and UK. Backward = domestic suppliers to foreign affiliates; forward = domestic buyers; horizontal = same sector. For cost efficiency, + denotes improvement (a lower operating cost-to-revenue ratio).

Source: AMRO–ADB staff estimates based on Moody's Orbis.

KEY OBSERVATIONS

1 Overall

Effects are mixed, but spillovers tend to be more significant from investors with a longer-established presence in the host economy

2 Profitability

Gains more evident in **SG** (all FDI) and **VN** (KR, JP) via vertical linkages

3 Cost efficiency

Backward: lower efficiency in SG (CN), TH (JP) and VN (KR)
Forward/horizontal: larger gains in SG and TH (CN)

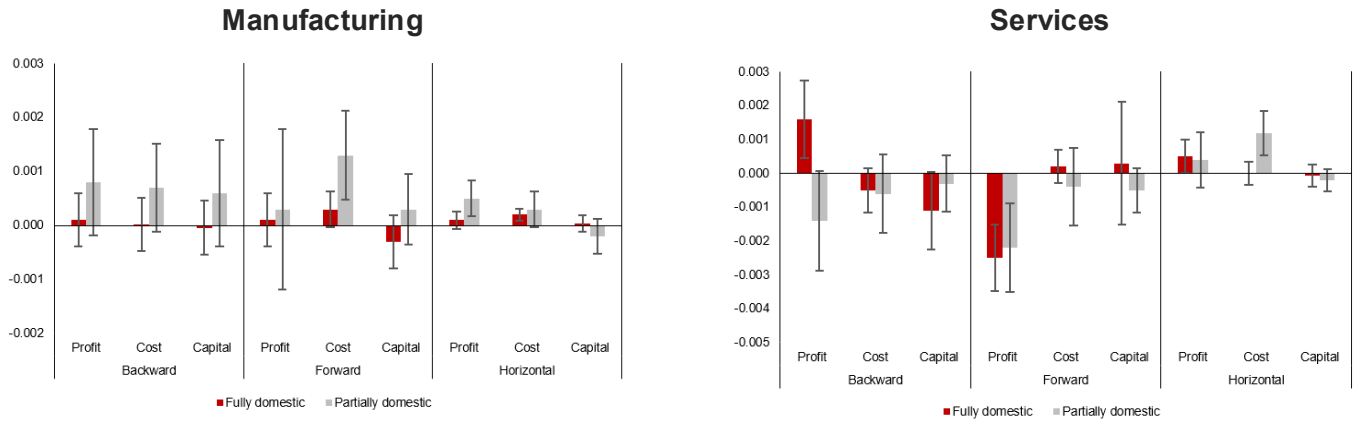
4 Capital intensity

Higher in **MY** via Japanese and US FDI, and in **VN** via Korean FDI

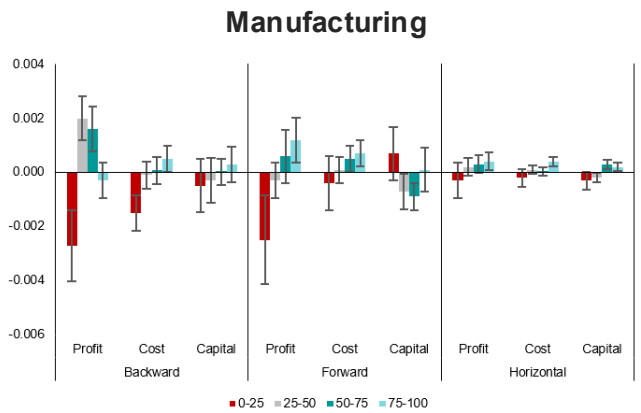
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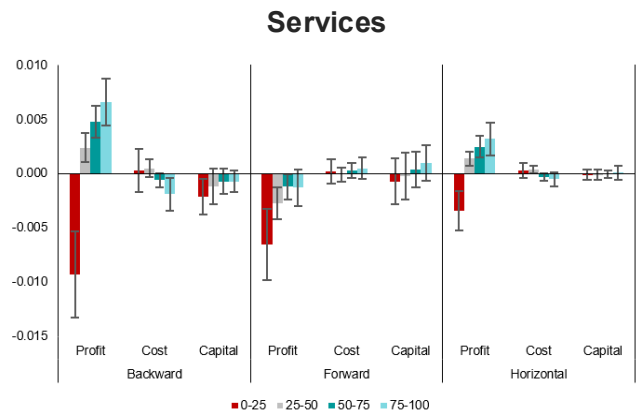
Firm characteristics: larger firms and firms with small foreign stakes gain more

Spillovers by firm type: fully vs partially domestic firms



Spillovers by firm size: fully domestic firms, by size percentile





KEY OBSERVATIONS

1 Ownership: manufacturing

Partially domestic firms gain more: larger horizontal profitability and forward cost-efficiency gains

2 Ownership: services

Partially domestic firms gain more cost efficiency; fully domestic firms absorb more backward and horizontal profit gains

3 Firm size: manufacturing

Larger firms see more profitability and cost-efficiency gains

4 Firm size: services

Larger firms see more profitability gains

Note: partially domestic = less than 10% foreign equity. Source: AMRO–ADB staff estimates based on Moody's Orbis.

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Summary of Key Findings (1/2)

- **Channel and sector matter**
  - **Vertical spillovers tend to be larger than horizontal spillovers**
    (Foreign affiliates work directly with local suppliers and buyers, upgrading them to meet quality and technical standards, whereas same-sector entry mainly adds competition for domestic firms)
  - **Spillovers are generally larger in services than manufacturing, but vary by channel.**
    (Services know-how is intangible and embodied in workers and business practices, so it transfers more easily, and many services must be sourced locally. Backward: foreign demand lifts profits, but stricter standards raise costs. Forward: better, cheaper inputs improve efficiency, but foreign providers capture part of the margin)
- **Investor source matters**
  - **Plus-3 FDI tends to generate more favorable spillovers than US FDI in manufacturing.**
    (Japanese firms have built regional production networks over decades, with high localization and technology-transfer rates; US lead firms tend to bring their established global suppliers and compete head-on with local firms)
  - **Within Plus-3, JP and KR effects vary across sectors, while CN FDI is more often associated with cost-efficiency gains through vertical and related-sector linkages.**
    (JP gains are concentrated in manufacturing networks, while its retail expansion adds competition in services; large KR plants create demand for local support services such as logistics; CN brings more efficient production methods, larger supply contracts and shared digital, logistics and payment infrastructure)

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Summary of Key Findings (2/2)

- **Host-country conditions and investment depth matter**
  - **Some economies, such as SG, capture stronger spillovers than others.**
    (Singapore firms are deeply integrated into MNC value chains, with absorptive capacity built through deliberate policy such as the Local Industry Upgrading Programme, which seconded MNC engineers to local suppliers)
  - **Spillovers tend to be stronger from long-established investors with deeper local linkages.**
    (A longer presence builds closer relationships with local firms, e.g., Japanese affiliates in Thailand sourced about half their inputs locally in 2013, and Korean investors are anchored in Vietnam)
- **Spillovers evolve over time**
  - **CN spillovers become more favorable post-2018.**
    (Production relocation to ASEAN accelerated after the 2018 US–China trade war, increasing interaction with local suppliers and partners, e.g., Chinese EV makers building local supply chains)
- **Firm absorptive capacity matters**
  - **Larger firms and firms with small foreign stakes tend to capture greater FDI spillovers.**
    (These firms have closer access to foreign technology, management practices and networks, and the financial and human capital to meet MNC requirements and withstand competition; selection bias may also play a role)

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Part 3: SYNTHESIS OF TEN ASEAN CASE STUDIES

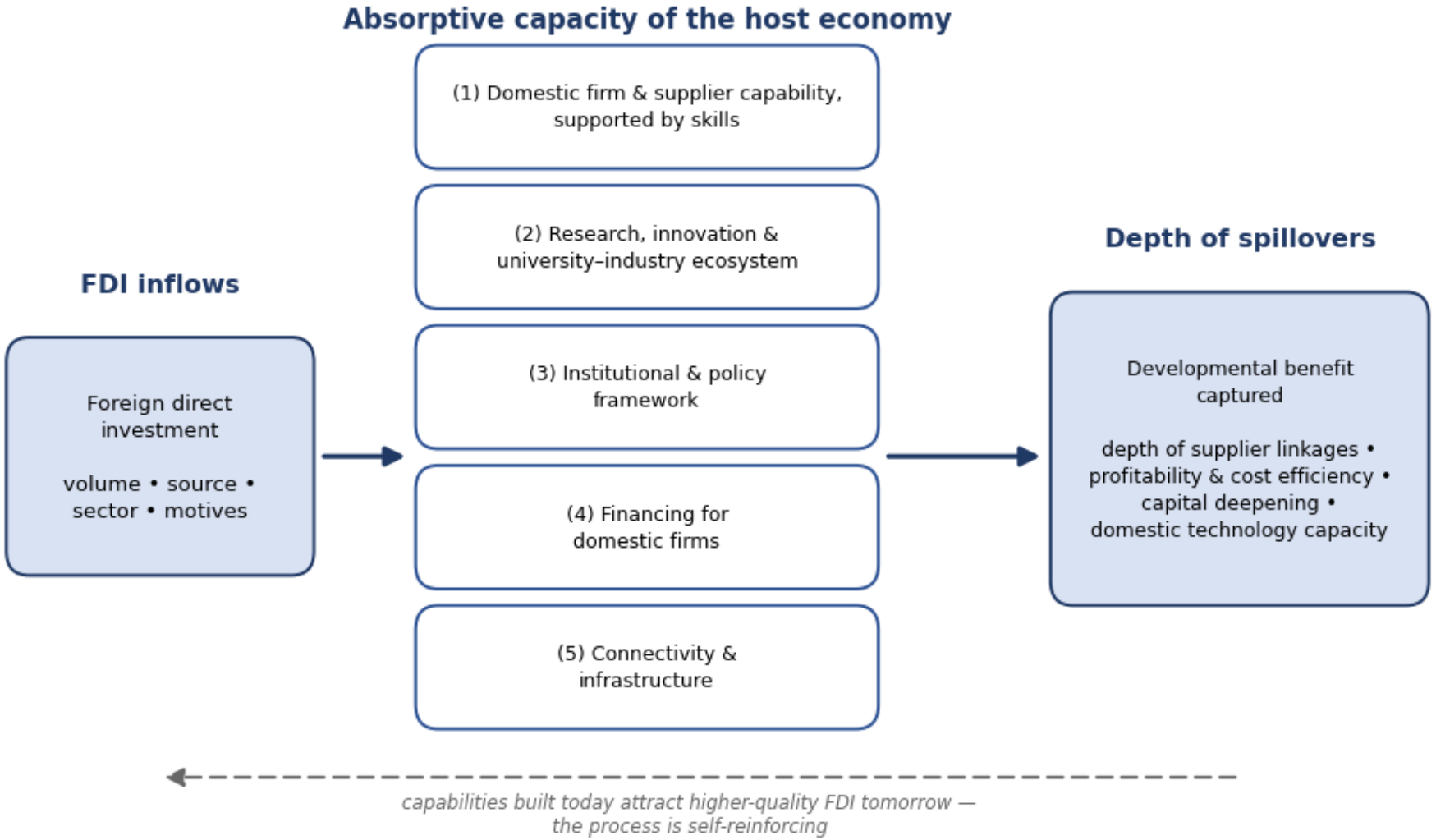
FDI Spillovers and Absorptive Capacity

ASEAN Case Studies: observations, learning points, policy considerations

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The Framework: FDI, Absorptive Capacity, and the Depth of Spillovers



Complementary in outcome — often missing independently; the binding constraint differs across economies

Ten Economies, Ten Different FDI Stories

The ten ASEAN economies differ in income level, sectoral specialization, and the type of FDI they have attracted.

Brunei Darussalam

Petroleum refining & petrochemicals (Hengyi)

~740 local jobs, USD 200m local contracts; gains largely first-order

Cambodia

Non-garment manufacturing & garments

2.2m of 10.4m jobs FDI-linked; exports +16.9% in 2025

Lao PDR

Resource sectors; Laos–China Railway

Transit time to Kunming halved; freight costs down 20–40%

Myanmar

Telecoms, towers & mobile rollout

Mobile penetration surged; 96 tech start-ups (2011–2020)

Indonesia

Nickel mining & downstream processing (EV materials)

Smelter numbers rose sharply in 6–7 years; tech transfer gradual

Philippines

IT-BPM, electronics assembly, testing & packaging

IT-BPM employment ~4x in 16 years; backward spillovers negative

Vietnam

Electronics: smartphones, displays (Samsung)

Local suppliers up from 25 to 306 in a decade; ~5,000 of 1m firms in GVCs

Thailand

Automotive (ICE, now EV); battery manufacturing

70% domestic content in ICE era; ~110,000 workers face displacement risk

Malaysia

Semiconductors : assembly, testing & packaging, IC design

Electronics now majority of merchandise exports; suppliers globally competitive

Singapore

Advanced semiconductors (NAND) & R&D

~7% of GDP, 35,000+ jobs; deep firm–education linkages

Source: AMRO staff compilation, based on the ten ASEAN case studies.

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What the Cases Collectively Show: Cross-Cutting Findings

1. Supplier capability is built, not assumed. Malaysia's supplier base reflects decades of institution-building (PSDC, est. 1989); Vietnam's early gains plateaued (~5,000 of ~1m firms in GVCs).

2. Production presence is not technology ownership. Indonesia's HPAL and Malaysia's assembly-and-test show hosting production does not generate domestic technology capacity — deliberate pivots were needed.

3. Institutions and connectivity are necessary but not sufficient. The Philippines has a strong promotion framework but limited spillovers; Lao PDR's railway and Myanmar's telecoms built preconditions, but have not achieved transformation.

4. Two constraints have not received as much attention as they should: finance and technological transition. Vietnam's firms borrow at 8–10% vs 1–3% for FDI affiliates; Thailand's EV shift strands ~110,000 ICE-era workers (16.3% of the auto workforce).

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Summary: Turning Plus-3 FDI into Domestic Capability

1 The FDI landscape is being reordered

- Plus-3's share of ASEAN inflows has held at about 29%, but China's share of Plus-3 flows rose from 27% to 70% (2013–25) as Japan's fell from 62% to 16%
- China is expanding through industry and greenfield projects; Japan is now concentrated in services and M&A; Korea invests through fewer, larger projects, anchored in Vietnam

2 Spillovers are real but highly heterogeneous

- Vertical spillovers tend to exceed horizontal ones, and effects are generally larger in services, though they vary by channel
- In manufacturing, Plus-3 FDI (Japan; China after 2018) is associated with more favorable spillovers than US FDI
- Gains accrue more from long-established investors, in economies such as Singapore, and to larger and foreign-affiliated domestic firms

3 Absorptive capacity sets the depth of spillovers

- Supplier capability is built, not assumed — and hosting production does not by itself confer technology ownership
- Institutions and connectivity are necessary but not sufficient
- Financing for domestic suppliers and the management of technological transitions remain under-addressed constraints

Policy implication: While attracting FDI, there is a need to build absorptive capacity — supplier upgrading co-designed with anchor MNCs, incentives tied to measured outcomes, a lead agency with a statutory linkage mandate, and credit linked to MNC supply-chain qualification.

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Thank you.

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Annex

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